

**October 2000**



**Ky. Environmental Quality Commission**

# **Martin County Coal Slurry Spill: Three Years Later**

**Public Forum and Tour**

**June 16-17, 2003**



On October 11, 2000, a coal slurry impoundment at the Martin County Coal Corporation near Inez, Martin Co. breached into an underground mine beneath the impoundment area, resulting in one of the largest environmental slurry spills ever in the southeastern U.S.

On June 16, 2003 EQC held a public forum at Jenny Wiley State Resort Park to receive status report on the site from federal and state officials. EQC also toured the mine site and impacted area on July 17.

Take this virtual tour of the mine site to learn more about the spill and see first-hand the impacts of the slurry spill disaster as well as efforts underway to reclaim and restore the land, waterways and the lives affected by this disaster

**June 2003**





# Martin County Coal Slurry Spill: Three Years Later



(AP PHOTO)



(AP PHOTO)

## The Spill

- The Martin County Coal's 44,000 acre coal mining operation near Inez Kentucky, has been in operation for more than 30 years.
- The operation produces 3 to 5 million tons of coal per year.
- Contour mining and mountaintop mining are the main form of of surface mining at the Martin County Coal Inez operation, while drift mining is the primary form of underground mining at the site.
- The 72-acre impoundment was permitted by federal and state authorities since 1985 to store coal processing waste.
- The impoundment has a 250 foot dam and holding capacity of 2.4 billion gallons.
- In the early morning hours of October 11, 2000, the impoundment experienced a sudden and unexpected breach releasing a slurry into the adjacent 1-C underground mine.
- An estimated 306 million gallons of coal refuse slurry filled the underground mines beneath the impoundment.
- An estimated 245 million gallons were discharged from two underground mine portals in opposing tributaries of the Big Sandy River, visibly contaminating waterways as far downstream as the Ohio River. The remainder of the slurry was contained in the underground mine.



# Martin County Coal Slurry Spill: Three Years Later



## The Response

- The breakthrough was first noticed at about midnight by company employees and stopped at 5 a.m. that same morning by filling the breach with rock and dirt.
- The discharge from the north portal of the underground mine entered Coldwater Fork and the discharge from the south portal entered Wolf Creek.
- On October 16, 2000 Gov. Paul Patton declared a state of emergency in ten Eastern Kentucky counties (Boyd, Bracken, Carter, Fleming, Greenup, Lawrence, Lewis, Martin, Mason and Robertson) where the spill threatened water supplies and forced closings of public and private facilities.
- A multitude of state and federal agencies responded to the spill each acting pursuant to the their own authorities and jurisdictions.
- The National Contingency Plan was put in place and a Unified Command created to coordinate federal, state and local response to the incident led by the U.S. Environmental Protection Agency on-site coordinator.
- At the height of of the cleanup effort in November 2000, Martin County Coal Corp. had committed 500 personnel and 350 pieces of heavy equipment.
- Majority of bulk material removed from affected areas by March 2001.



# Martin County Coal Slurry Spill: Three Years Later

## The Impact



- No loss of human life occurred but significant environmental damage resulted impairing water quality along 100 miles of the Wolf, Coldwater and Rockcastle creeks and Levisa and Tug forks of the Big Sandy River. Twenty miles of streams and floodplains were buried in 8 feet of slurry.
- The sludge, which contained measurable amounts of heavy metals including arsenic, mercury, lead, cadmium, copper, copper, and chromium, contaminated water supplies of riverside communities in Kentucky and West Virginia. Four municipal drinking water intakes were shut down.
- All aquatic life was eliminated in Wolf and Coldwater creeks and severely impacted in roughly 70 miles of streams. The Kentucky Department of Fish and Wildlife fined the company \$225,000 to replace the fish impacted by the spill.
- The estimated cost to date of the cleanup is \$58 million. The first phase of cleanup, covering 15 miles of streams and land along Coldwater and Wolf creeks, was completed in May, but a second 90-mile phase of cleanup to restore waterways will take three to five years to complete, according to the cleanup plan.
- More than 300 lawsuits were filed alleging property and health damage from the slurry spill.
- The Agency for Toxic Substances and Disease Registry (ATSDR) public health assessment, concluded that there were no exposures to contaminants at levels of health concern to the general population. The report has been challenged by local citizen groups.



# Martin County Coal Slurry Spill: Three Years Later



## The Cause

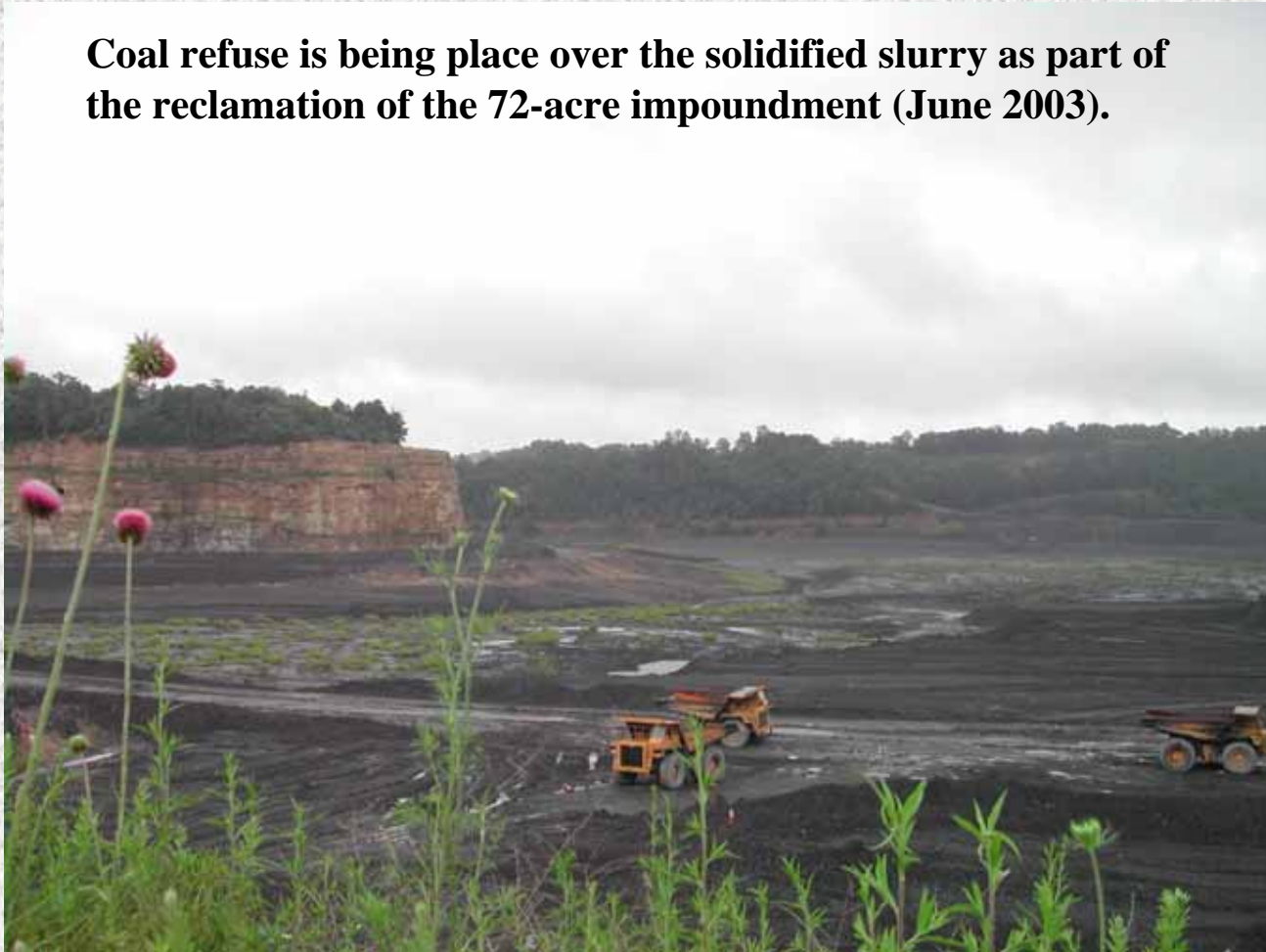
- Martin County Coal Corp. -- A "sudden and unexpected" collapse of an abandoned underground coal mine next to the impoundment.
- U.S. Mine Safety and Health Administration (MSHA) -- Martin County Coal Corp. failed to spread a layer of fine coal slurry around the perimeter during the construction of the impoundment and failed to respond to signs that monitored water flow from the impoundment had increased.
- MSHA levied a \$110,000 penalty against the Martin County Coal Co. for failing to prevent the Oct. 11, 2000 spill of 300 million gallons of sludge
- State of Kentucky -- Company misrepresented the barrier's thickness and insufficient defenses against leaks, such as the failure to construct an adequate seepage barrier at the bottom of the impoundment and also exceeding the maximum approved slurry elevation in the impoundment.
- Martin County Coal signed an Agreed Order with the Natural Resources and Environmental Protection Cabinet accepting civil penalties of \$1,750,000, damages to Kentucky's environment of \$1 million and response costs incurred by the cabinet of \$500,000.
- The Agreed Order directs the company to close and reclaim the Big Branch Slurry Impoundment and remediate and restore as necessary the streams damaged by the slurry so they can meet water quality standards.



# **Martin County Coal Slurry Spill: Three Years Later**

## **EQC Tour June 2003 : Martin County Coal Corp. Impoundment**

**Coal refuse is being place over the solidified slurry as part of the reclamation of the 72-acre impoundment (June 2003).**



**The state's outstanding enforcement actions against Martin County Coal have been resolved resulting in the closure and ongoing reclamation of the 72-acre impoundment.**



# **Martin County Coal Slurry Spill: Three Years Later**

## **EQC Tour June 2003 : Martin County Coal Slurry Cell**

**Martin County Coal slurry cell (June 2003).**



**Martin County Coal Corp. is using 30 slurry cells for processed coal waste. The cells range in size from one to 30 acres.**



# Martin County Coal Slurry Spill: Three Years Later

## EQC Tour June 2003 –Underground Coal Mine and Portals



Water draining from the underground mine where millions of gallons of slurry are trapped.

The underground mine portals where the slurry was discharged have been sealed with dirt and concrete. An estimated 60 million gallons of slurry remains trapped in the underground mine below the impoundment.



# Martin County Coal Slurry Spill: Three Years Later

## EQC Tour June 2003– Slurry Removal

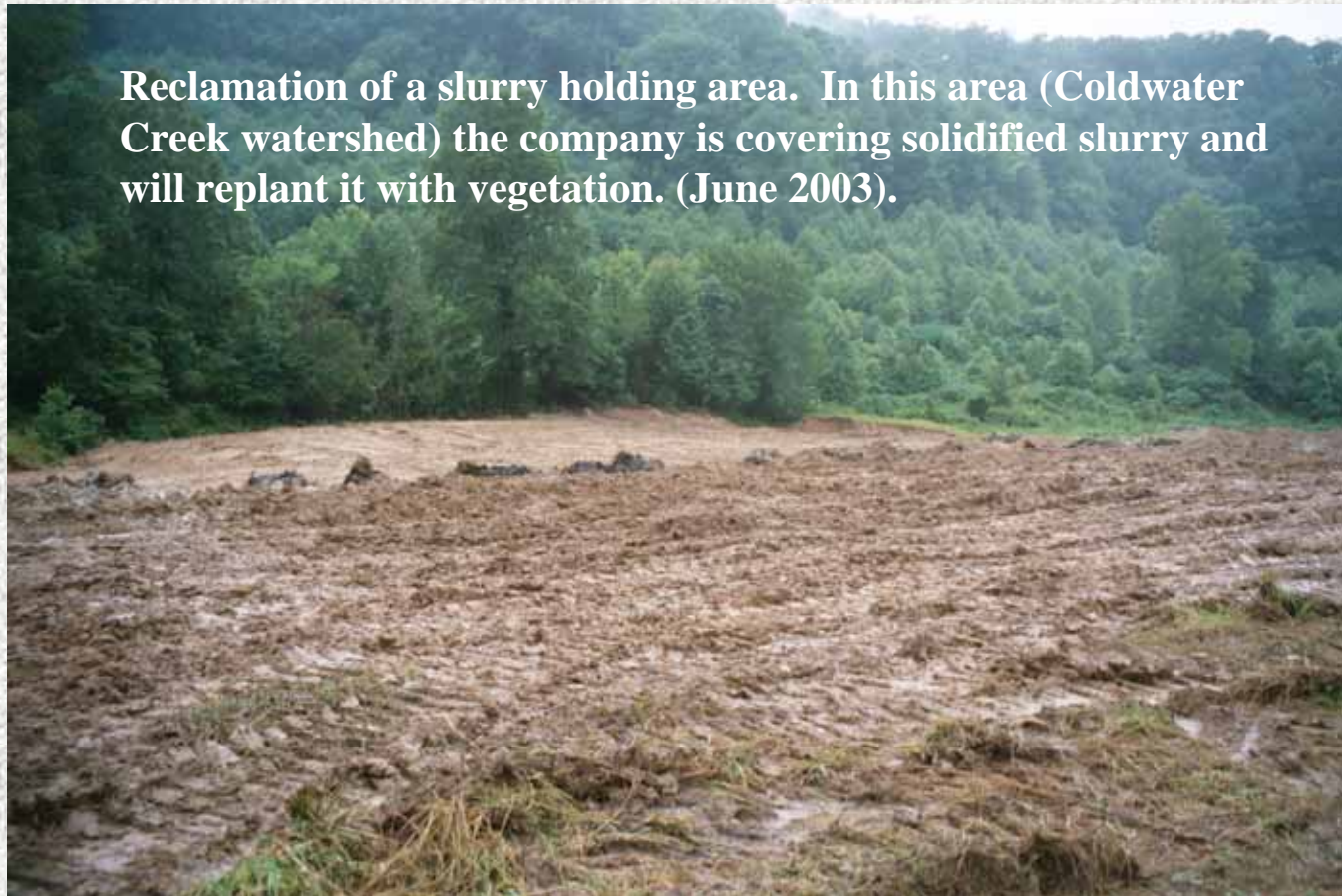


**Slurry along floodplains have been removed and replanted with a variety of vegetation. The slurry removal process is considered complete and efforts are now underway to restore water quality in 90 miles of waterways.**



# Martin County Coal Slurry Spill: Three Years Later

## EQC Tour June 2003 Status – Slurry Removal

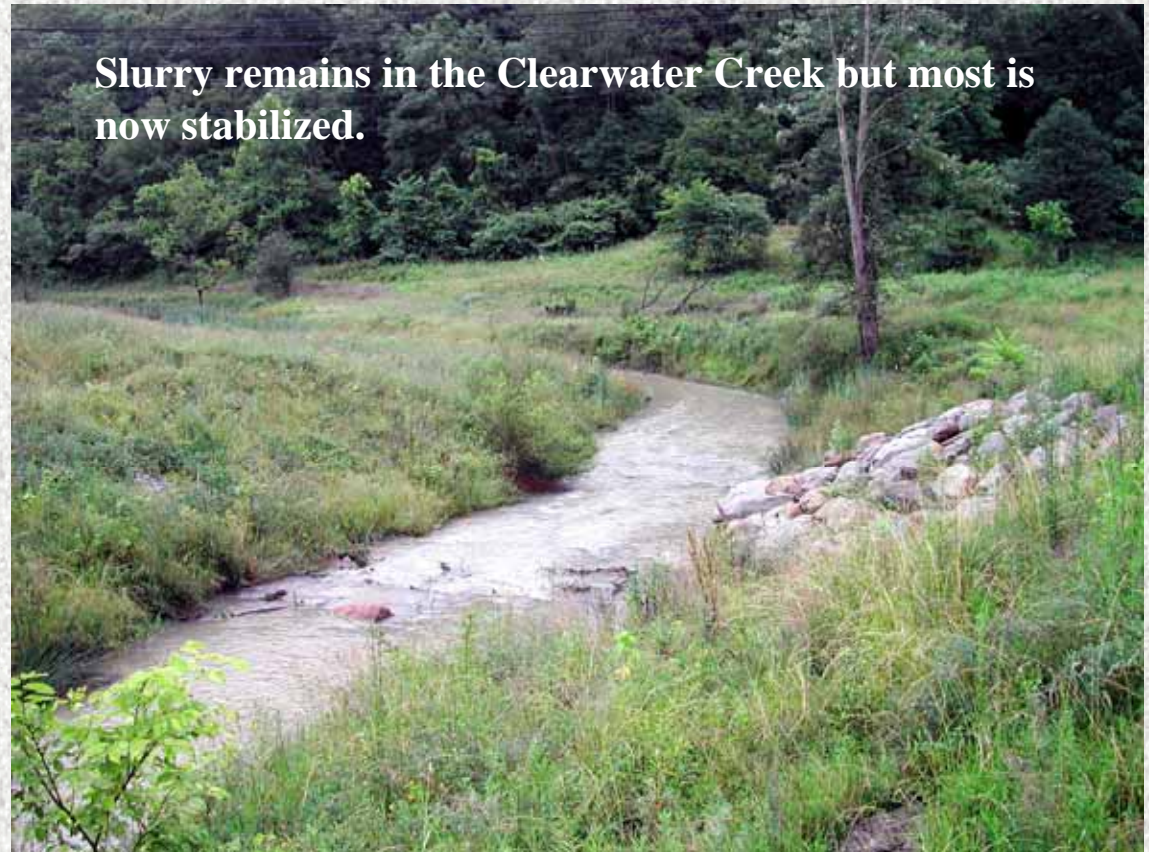


**Martin County Coal Corp. used several holding ponds and areas to store the slurry during the cleanup process. The company is required to obtain permits and post bonds for the areas where slurry from the cleanup operation is stored.**



# Martin County Coal Slurry Spill: Three Years Later

## EQC Tour June 2003 – Clearwater Creek



Slurry remains in the Clearwater Creek but most is now stabilized.

**Water quality sampling reveals levels of lead, cadmium, mercury, zinc, chromium, copper and arsenic exceed Clean Water Act standards in Coldwater Creek. A Stream and Restoration Plan for upper Middle Coldwater Fork based on natural design principles is under development by the coal company.**



# Martin County Coal Slurry Spill: Three Years Later

## EQC Tour June 2003 –Wolf Creek

Some life is beginning to return to Wolf Creek, according to state officials (June 2003).



**The U.S. EPA and Ky. Division of Water continue to review impact assessment reports for sediment, habitat and water quality sampling in Wolf Creek and other stream segments affected by the spill. Repairs continue to address erosion damage along stream banks and slopes as needed.**



# Martin County Coal Slurry Spill: Three Years Later



**A status report was given by Tom Welborn, U.S. EPA Region IV, Bob Logan, Ky. Department of Environmental Protection and Allen Luttrell, Ky. Department of Surface Mining.**

## **EQC June Public Forum: Status Report**

The full extent of the Martin County Coal Slurry spill is not yet known.

A U.S. EPA Restoration Plan is now leading the cleanup effort that consists of six major activities:

- 1) initial evaluation of existing data;
- 2) completion of a Screening-level Ecological Risk Assessment (SERA) to establish cleanup criteria;
- 3) assessment and implementation of necessary removal activities as required to meet cleanup criteria;
- 4) implementation of restoration procedures;
- 5) restoration maintenance, monitoring, and compensatory mitigation; and
- 6) reporting.





# Martin County Coal Slurry Spill: Three Years Later



## EQC June Public Forum: Water Quality

### Status To Date

- A Stream Assessment and Cleanup Survey Team with state and federal agencies established to assess impacts, cleanup and restoration.
- Primary oversight of cleanup transferred from U.S. EPA to Ky. Division of Water on July 6, 2001.
- Martin County Coal continues to work on restoration plan.
- Ky. Division of Water committed to restoring impacted streams and floodplains to pre-spill conditions.
- Slurry remains in stream systems -- will never remove all.
- Some life returning to Coldwater and Wolf creeks
- Water quality standards exceeded for lead, cadmium, mercury, zinc, chromium, copper, and arsenic.

### Currently under review:

- Sediment sampling and habitat characterization in the Tug Fork and Tributaries.

### Ongoing efforts:

- Impact Assessment reports for sediment, habitat and water quality sampling in stream segments affected by the spill.
- Repairs due to erosion damage along stream banks and slopes as needed.
- Stream and restoration plan for upper Middle Coldwater Fork based on natural design principles.



# **Martin County Coal Slurry Spill: Three Years Later**

## **EQC Public Forum -- Coal Impoundments**

### **Congress--Status**

Congress directed the National Research Council to examine ways to reduce the potential for similar impoundment failures in the future. A report was issued in 2002.

The federal Office of Surface Mining (OSM) and the and the Mine Safety and Health Administration (MSHA) MSHA are working jointly on a report to Congress that is due on August 15, 2003, to respond to the National Research Council's recommendations regarding coal waste impoundments.

### **Federal Agencies--Status**

MSHA conducted an internal review of its impoundment program and will:

- Adopt new guidelines to ensure significant new impoundment plans get prompt and thorough review by Technical Support specialists, while eliminating backlogs of plans awaiting approval;
- Work to clarify and streamline safety directives;
- Issue a new impoundment inspection handbook; and
- Review technology to help verify the exact extent of underground workings shown on mine maps.

### **Ky. Department of Surface Mining--Status**

- Review of 118 impoundments and engineering revisions to permits based on findings.
- A regional surface mining engineer must now perform an annual inspection of each impoundment in that region.
- Designation of surface mining engineers to review impoundments only and addition of a second level of review.
- A state Mapping Initiative to provide public access to historical and active underground maps.



# Martin County Coal Slurry Spill: Three Years Later

## EQC Recommendations

The Kentucky Environmental Quality Commission expressed concern regarding the lack of public information, outreach, involvement and participation in spill restoration activities. Two years ago in a letter to EPA, the commission expressed great concern that the public was being left out of the decision-making process concerning the cleanup and restoration of areas and waterways impacted by the Martin County Coal slurry spill.

In a letter to Gov. Patton and U.S. EPA Regional Administrator J. I. Palmer, EQC strongly recommends that a:

- A public advisory committee be established (composed of citizen, academic, environmental, local and state officials – both statewide and local interests) to allow for meaningful discussion and input on the restoration plan and activities.
- Quarterly newsletters or fact sheets be prepared by the U.S. EPA to update the citizens of Kentucky on key restoration activities, timelines, water quality and sediment sampling and results, and other issues pertinent to the site.
- At least one public meeting be held every 8 to 12 months to provide a status report on cleanup activities.
- An EPA Web site be created with access to reports and other information pertaining to the site.
- A contact person at the EPA be identified to allow the public to email or telephone, toll free, questions.

The commission also encouraged EPA and Massey Energy to provide funding to the public advisory committee through a Technical Assistance Grant or through other means to help the community interpret documents and conduct independent water quality sampling and testing. To view the recommendation see the EQC Web site at [www.kyeqc.net](http://www.kyeqc.net)







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